IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx CES 18.0007X

Issue No: 0

Certificate history:
Issue No. 0 (2018-03-19)

Status: **Current**

Date of Issue: **2018-03-19**

Applicant: **Rose Systemtechnik GmbH**
(A Phoenix Mecano Company)
Erbeweg no:13-15
D-32457 Porta Westfalica
Germany

Equipment: **Cable glands, series CGA**, CGU**, MCGU**, CGA**LT****

Optional accessory:

Type of Protection: **Flameproof enclosures 'd'; Increased safety 'e'; Dust ignition protection 't'**

Marking:

Ex db I Mb *and* **Ex eb I Mb**

or

Ex db IIC Gb *and* **Ex eb IIC Gb**

Ex tb IIIC Db

IP66/68

Approved for issue on behalf of the IECEx Certification Body: Mirko Balaz

Position: Head of IECEx CB

Signature:
(for printed version)

Date: 19-3-2018

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy

CESI S.p.A.
Testing & Certification Division
Business Area Certification
Il Responsabile
(Roberto Piccin)

IECEx Certificate of Conformity

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Manufacturer:	**Rose Systemtechnik GmbH** (A Phoenix Mecano Company) Erbeweg no:13-15 D-32457 Porta Westfalica **Germany**	

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

IT/CES/ExTR18.0007/00

Quality Assessment Report:

DE/EPS/QAR17.0003/04

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The series of cable glands with trade mark Rose Systemtechnik GmbH is composed by the following types: CGU**, MCGU**, CGA** and CGA**LT** cable glands.

The cable glands series CGU**, MCGU**, CGA** and CGA**LT** are suitable for inserting circular cables into Ex db enclosures having threaded entries and Ex eb or Ex tb enclosures having either threaded or plane entries. Attachment of the glands to an enclosure is by means of the male threaded portion on the male body.

The types CGU** and MCGU** glands are designed for non-armoured cables and are comprised of a male body, inner sealing ring, pressure ring and cap.

The Standard types CGA** and CGA**LT** cable glands are suitable for steel wire armoured cables. They are comprised of a male body, lower sealing ring, grounding cone, swivel braid retainer, middle body, upper sealing ring and cap.

For Universal types CGAU** and CGAU** LT** cable glands the armour reduction ring is used. With this additional ring, they can be used for shielded cables. When the armour reduction ring is taken out, then they can be used for armoured cables. While Offshore types CGAO** and CGAO** LT** cable glands instead of the grounding cone, shielding cone is used and they are used for shielded cables.

The cable glands characteristics are further described in the Annexe of this certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The coupling of the cable glands with the enclosures shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which cable glands are mounted.
- The cable glands shall be mounted at the electrical apparatus in such a way that accidental rotation and loosening will be prevented.
- The CGA**, CGA**LT** and MCGU** cable glands types have to be protected from hydraulic fluids, oils and greases when applied for Group I (mines) applications.
- The CGA** (Standard) cable glands types from M20x1.5 up to M90x1.5 sizes and CGA**LT** (Standard) cable glands types all sizes are only admitted for Group I applications.
- The MCGU** cable glands types M16x1.5 sizes are not admitted for Group I applications.
- The CGA** cable glands types made of Aluminium alloy are not admitted for Group I applications and are available from M25x1.5 up to M75x1.5 sizes only.
- The cable glands shall be installed in such a way that the temperature at the mounting point will remain within the service temperature ranges accordingly to the marking.
- The degree of protection IP 66/68 according to the IEC 60529 standard will be guaranteed for the cable glands if the holes into which cable glands are mounted are suitably sealed. To this scope the correct positioning of the gaskets (for cylindrical threads) or the application of sealant on the threads (for tapered threads), shall be done as indicated in the manufacturer instruction.

Annex:

IECEx CES 18.0007X Issue 0 ANNEX- Cable glands CGA.pdf

IECEx Certificate of Conformity

Prot: B8006279

Annex to certificate: **IECEx CES 18.0007X Issue No.:0 of 2018-03-19**

Applicant: **Rose Systemtechnik GmbH (A Phoenix Mecano Company)**
Erbeweg 13-15, D-32457 Porta Westfalica – Germany

Apparatus: **Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT****

Description of the equipment:

The series of cable glands with trade mark **Rose Systemtechnik GmbH** is composed by the following types: **CGU****, **MCGU****, **CGA**** and **CGA**LT**** cable glands.

The cable glands series **CGU****, **MCGU****, **CGA**** and **CGA**LT**** are suitable for inserting circular cables into Ex db enclosures having threaded entries and Ex eb or Ex tb enclosures having either threaded or plane entries. Attachment of the glands to an enclosure is by means of the male threaded portion on the male body. An elastomeric inner sealing ring is used in each gland type to facilitate sealing between the cable and gland body and to clamp the cable to prevent pulling or twisting forces being transmitted to the conductor connections. Ingress protection of IP66/68 (50 m for 30 min.) is maintained when the glands are installed in accordance with the manufacturer's instructions.

The types **CGU**** and **MCGU**** glands are designed for non-armoured cables and are comprised of a male body, inner sealing ring, pressure ring and cap. When the cap is screwed onto the male body, the pressure ring comprises the lower sealing ring onto the outer sheath of the cable and realizes the clamping.

The Standard types **CGA**** and **CGA**LT**** cable glands are suitable for steel wire armoured cables. They are comprised of a male body, lower sealing ring, grounding cone, swivel braid retainer, middle body, upper sealing ring and cap. When the middle body is screwed onto the male body the cable wire armour is clamped between the swivel braid retainer and the grounding cone and the lower sealing ring is compressed onto the inner sheath of the cable. Sealing of the cable outer sheath is facilitated by the upper sealing ring which is compressed onto the outer sheath when the cap is screwed onto the middle body.

For Universal types **CGAU**** and **CGAU**LT**** cable glands the armour reduction ring is used. With this additional ring, they can be used for shielded cables. When the armour reduction ring is taken out, then they can be used for armoured cables. While Offshore types **CGAO**** and **CGAO**LT**** cable glands instead of the grounding cone, shielding cone is used and they are used for shielded cables.

The cable glands **CGA**** Standard type (from M20x1.5 up to M90x1.5 sizes and with the exclusion of Aluminium alloy), **CGA**LT**** Standard type (from M20x1.5 up to M130x2 sizes) and **MCGU**** type (M16x1.5 sizes excluded) only are for Group I (mines) executions too. While all the cable glands types **CGA****, **CGU****, and **CGA**TL**** are for Group IIC and Group IIIC. The cable glands should be also used for intrinsically safe circuits Ex i and should have a part painted in light blue.

The **CGA**** cable glands series standard threads types are NPT ANSI/ASME B1.20.1 from 1/4" up to 3"½ and cylindrical ISO Metric 965/1 and ISO 965/3 from M12x1.5 up to M110x1.5. The **CGU**** and **MCGU**** cable glands series standard threads types are NPT ANSI/ASME B1.20.1 from 3/8" up to 3" and cylindrical ISO Metric 965/1 and ISO 965/3 from M16x1.5 up to M90x1.5.

For **CGA**LT**** cable glands series standard threads types are cylindrical ISO Metric 965/1 and ISO 965/3 from M20x1.5 up to M130x2 and tapered threads type NPT ANSI/ASME B1.20.1 from 1/2" up to 5", while for **CGAO**LT**** cable glands series standard threads types are cylindrical ISO Metric 965/1 and ISO 965/3 from M20x1.5 up to M32x1.5 and tapered threads type NPT ANSI/ASME B1.20.1 from 1/2" up to 1".

Alternative available cylindrical threads are GAS ISO 228/1, NPSM ANSI/ASME B1.20.1 and type PG DIN 40430. Thread type PG DIN 40430 can be used for "Ex eb" execution only.

To guarantee the IP 66/68 degree of protection the cable glands types **CGU****, **MCGU****, **CGA**** and **CGA**LT**** with cylindrical threads have a sealing edge machined for fitting an O-ring, alternatively it is available a flat washer, while for all other threads the IP 66/68 degree of protection is achieved with sealant put at least on two complete threads engaged of the threaded coupling.

The cable glands are generally made in Brass. The alternative materials can be used: Nickel-plated Brass, Stainless steel, Galvanized carbon steel and Aluminium alloy (CGA** type and sizes from M25x1.5 up to M75x1.5 only).

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Annex to certificate: **IECEx CES 18.0007X Issue No.:0 of 2018-03-19**

Applicant: **Rose Systemtechnik GmbH (A Phoenix Mecano Company)**
Erbeweg 13-15, D-32457 Porta Westfalica – Germany

Apparatus: **Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT****

Constructional characteristics

Service temperature ranges:

Models with sealing rings made of Chloroprene rubber:
- 40 ÷ + 100 °C for types **CGA**, CGU****;
- 40 ÷ + 80 °C for type **MCGU****;
- 40 ÷ + 80 °C for type **CGA**LT****.

Models with sealing rings made of Silicon rubber:
- 60 ÷ + 130 °C for types **CGA**, CGU****;
- 60 ÷ + 80 °C for type **MCGU****;
- 60 ÷ + 80 °C for type **CGA**LT****.

CGA** models made of Aluminium alloy: up to + 80 °C.

Types for **Group I** (mines) execution: up to + 80 °C.

Models supplied with Fiber flat washer: - 50 ÷ + 80 °C for all types.

Models made of Galvanized carbon steel: limited up to - 20 °C.

The cable gland types, installation Group, manufacturer materials and service temperature ranges are reported in the table below:

Type	Exec.	Materials	Seals	Temperature
CGA**	Group I	Brass, Nickel plated brass, Stainless steel	Chloroprene	-40°C ÷ +80°C
			Silicon	-60°C ÷ +80°C
		Galvanised steel	*All seals*	-20°C ÷ +80°C
	Group IIC Group IIIC	Brass, Nickel plated brass, Stainless steel	Chloroprene	-40°C ÷ +100°C
			Silicon	-60°C ÷ +130°C
		Aluminium alloy	Chloroprene	-40°C ÷ +80°C
			Silicon	-60°C ÷ +80°C
		Galvanised steel	Chloroprene	-20°C ÷ +100°C
			Silicon	-20°C ÷ +130°C
CGU**	Group IIC Group IIIC	Brass, Nickel plated brass, Stainless steel	Chloroprene	-40°C ÷ +80°C
			Silicon	-60°C ÷ +80°C
		Galvanised steel	All seals	-20°C ÷ +80°C
MCGU**	Group I Group IIC Group IIIC	Brass, Nickel plated brass, Stainless steel	Chloroprene	-40°C ÷ +80°C
			Silicon	-60°C ÷ +80°C
		Galvanised steel	*All seals*	-20°C ÷ +80°C
CGALT****	Group I Group IIC Group IIIC	Brass, Nickel plated brass, Stainless steel	Chloroprene	-40°C ÷ +80°C
			Silicon	-60°C ÷ +80°C
		Galvanised steel	*All seals*	-20°C ÷ +80°C
Restricted use to the service temperature range of **-50°C÷+80°C** for all types whit fiber flat washers.				

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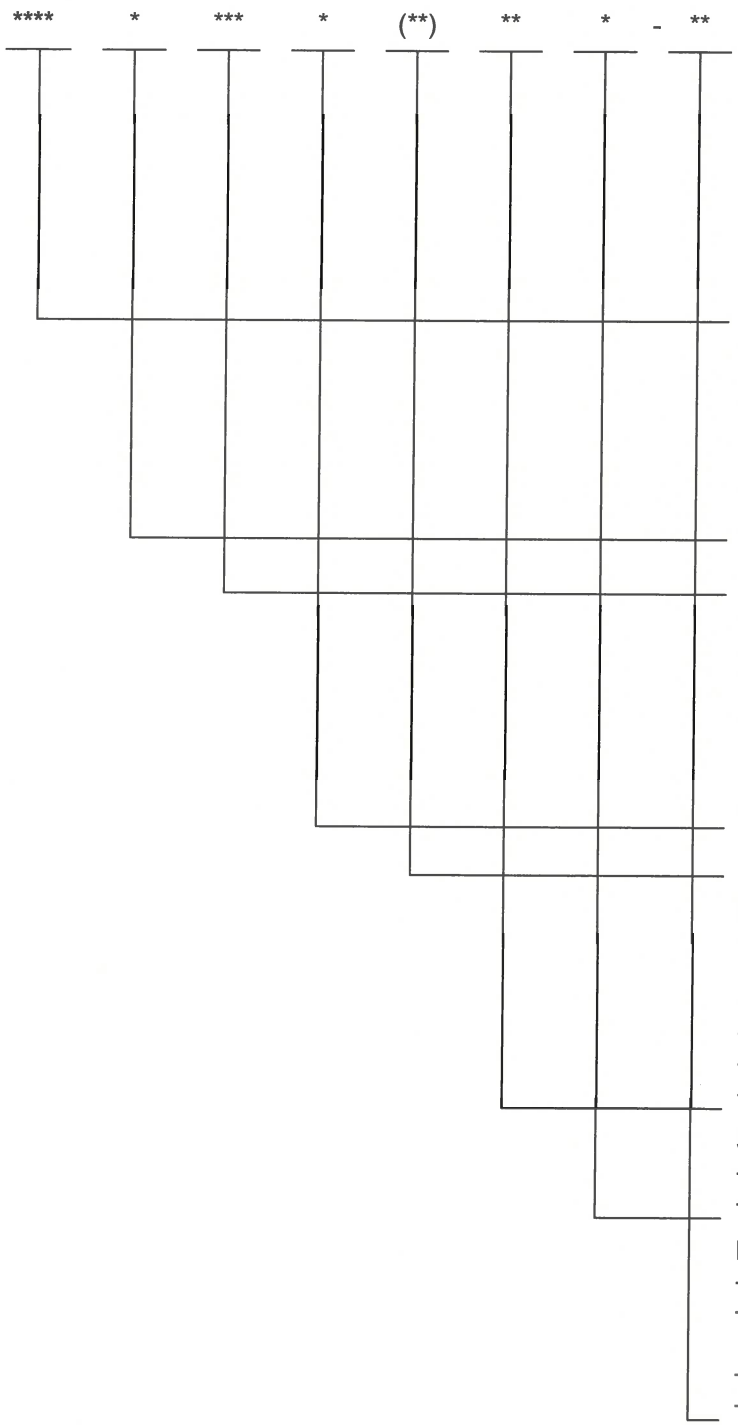
Applicant: **Rose Systemtechnik GmbH (A Phoenix Mecano Company)**
Erbeweg 13-15, D-32457 Porta Westfalica – Germany

Apparatus: **Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT****

Identification of cable glands **CGA****, **CGU**** and **MCGU**** types:



Code that identifies the type:
- **CGA**: cable gland for armoured or shielded cable;
- **MCGU**: cable gland for non-armoured cable;
- **CGU**: cable gland for non-armoured cable.

Code that identifies the type *(**CGA**** only)*
- **Blank**: standard *(for armoured cables only)*
- **U**: universal *(for armoured or shielded cables)*

- **O**: offshore *(for shielded cables only)*

Size (*see Table 1, 2 and 3 and).*

Type of thread:
- **N**: NPT ANSI/ASME B1.20.1
- **S**: NPSM ANSI/ASME B1.20.1
- **P**: PG DIN 40430 *(assessed for Ex eb protection mode only)*
- **M**: ISO 261 pitch 1.5
- **C**: GAS ISO 228-1

Thread size (*see Table 1, 2 and 3*)

Manufacturing material:
- **A**: aluminium alloy *(**CGA**** type, M25 up to M75 sizes only)*
- **B**: brass
- **BN**: nickel-plated brass
- **X**: stainless steel
- **Z**: galvanized carbon steel

Seals material:
- **C**: Chloroprene (Neoprene)
- **S**: Silicon rubber

Flat washer:
- **Blank**: none
- **WC**: with flat washer in Chloroprene (Neoprene)
- **WS**: with flat washer in Silicon rubber
- **WF**: with flat washer in Fiber

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Annex to certificate: IECEx CES 18.0007X Issue No.:0 of 2018-03-19

Applicant: Rose Systemtechnik GmbH (A Phoenix Mecano Company)
Erbeweg 13-15, D-32457 Porta Westfalica – Germany

Apparatus: Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT**

Types and thread sizes of cable glands are listed on the followings Table 1, Table 2 and Table 3.

Table 1:

CGA**					
Cable glands		Thread size		Cable Dia. ranges (mm)	
Type	Size	NPT	ISO pitch 1.5	Inner sheath	Armour sheath
CGA	0S..	1/4"	M 12	2-4	3-5.5
CGA	SL..	1/4"	M 12	3-7.5	6-12
CGA	01S..	3/8"	M 16	3-8.5	6-12
CGA	01..	3/8"	M 16	6-12	8.5-16
CGA	1S..	1/2"	M 20	3-8.5	6-12
CGA	1..	1/2"	M 20	6-12	8.5-16
CGA	1L..	1/2"	M 20	8.5-14.5	12-20
CGA	2XS..	3/4"	M 25	3-8.5	6-12
CGA	2S..	3/4"	M 25	6-12	8.5-16
CGA	2..	3/4"	M 25	8.5-16	12-21
CGA	2L..	3/4"	M 25	12-20	16-26
CGA	3XS..	1"	M 32	6-12	8.5-16
CGA	3S..	1"	M 32	12-20	16-26
CGA	3..	1"	M 32	15-26	20-33
CGA	4XS..	1 ¼"	M 40	12-20	16-26
CGA	4S..	1 ¼"	M 40	15-26	20-33
CGA	4..	1 ¼"	M 40	20-32	29-41
CGA	5XS..	1 ½"	M 50	15-26	20-33
CGA	5X..	1 ½"	M 50	20-32	29-41
CGA	5S..	1 ½"	M 50	22-35	33-48
CGA	5..	1 ½"	M 50	27-41	36-52
CGA	6XS..	2"	M 63	22-35	33-48
CGA	6X..	2"	M 63	27-41	36-52
CGA	6S..	2"	M 63	35-45	43-57
CGA	6..	2"	M 63	40-52	47-60
CGA	6L..	2"	M 63	45-56	54-70
CGA	7XS..	2 ½"	M 75	35-45	43-57
CGA	7S..	2 ½"	M 75	40-52	47-60
CGA	7..	2 ½"	M 75	45-60	54-70
CGA	8XS..	3"	M 90	40-52	47-60
CGA	8S..	3"	M 90	45-60	54-70
CGA	8..	3"	M 90	60-72	63-80
CGA	9S..	3 ½"	-	45-60	54-70
CGA	9..	3 ½"	-	60-72	63-80
CGA	10S..	-	M 110	45-60	54-70
CGA	10..	-	M 110	60-72	63-80

Note: Aluminium alloy available from M25x1.5 (1/2"NPT) up to M75x1.5 (2"½NPT) sizes only.

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Applicant: Rose Systemtechnik GmbH (A Phoenix Mecano Company)
Erbeweg 13-15, D-32457 Porta Westfalica – Germany
Apparatus: Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT**

Table 2:

CGU**				
Cable glands		Thread size		Cable Dia. ranges (mm)
Type	Size	NPT	ISO pitch 1.5	
CGU	01..	3/8"	M 16	3-8.5
CGU	01L..	3/8"	M 16	6-12
CGU	1..	1/2"	M 20	6-12
CGU	1L..	1/2"	M 20	12-14.5
CGU	2S..	3/4"	M 25	6-12
CGU	2..	3/4"	M 25	12-16
CGU	2L..	3/4"	M 25	12-20
CGU	3S..	1"	M 32	12-20
CGU	3..	1"	M 32	15-26
CGU	4S..	1 ¼"	M 40	15-26
CGU	4..	1 ¼"	M 40	20-32
CGU	5S..	1 ½"	M 50	22-35
CGU	5..	1 ½"	M 50	27-41
CGU	6S..	2"	M 63	35-45
CGU	6..	2"	M 63	40-52
CGU	7S..	2 ½"	M 75	40-52
CGU	7..	2 ½"	M 75	45-60
CGU	8S..	3"	M 90	45-60
CGU	8..	3"	M 90	60-72

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Applicant: Rose Systemtechnik GmbH (A Phoenix Mecano Company)
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Apparatus: Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT**

Table 3:

MCGU**				
Cable glands		Thread size		
Type	Size	NPT	ISO pitch 1.5	Cable Dia. ranges (mm)
MCGU	01M2..	3/8"	M 16	3-8.5
MCGU	01LM1..	3/8"	M 16	6-9
MCGU	01LM2..	3/8"	M 16	9-12
MCGU	1M1..	1/2"	M 20	6-9
MCGU	1M2..	1/2"	M 20	9-12
MCGU	1LM1..	1/2"	M 20	8.5-11.5
MCGU	1LM2..	1/2"	M 20	11.5-14.5
MCGU	2SM1..	3/4"	M 25	6-9
MCGU	2SM2..	3/4"	M 25	9-12
MCGU	2M1..	3/4"	M 25	8.5-12.5
MCGU	2M2..	3/4"	M 25	12.5-16
MCGU	2LM1..	3/4"	M 25	12-16
MCGU	2LM2..	3/4"	M 25	16-20
MCGU	3SM1..	1"	M 32	12-16
MCGU	3SM2..	1"	M 32	16-20
MCGU	3M1..	1"	M 32	15-20
MCGU	3M2..	1"	M 32	20-26
MCGU	4SM1..	1 ¼"	M 40	15-20
MCGU	4SM2..	1 ¼"	M 40	20-26
MCGU	4M1..	1 ¼"	M 40	20-26
MCGU	4M2..	1 ¼"	M 40	26-32
MCGU	5SM1..	1 ½"	M 50	22-28
MCGU	5SM2..	1 ½"	M 50	28-35
MCGU	5M1..	1 ½"	M 50	27-35
MCGU	5M2..	1 ½"	M 50	34-41
MCGU	6SM1..	2"	M 63	35-40
MCGU	6SM2..	2"	M 63	40-45
MCGU	6M1..	2"	M 63	40-46
MCGU	6M2..	2"	M 63	46-52
MCGU	7SM1..	2 ½"	M 75	40-46
MCGU	7SM2..	2 ½"	M 75	46-52
MCGU	7M1..	2 ½"	M 75	45-52
MCGU	7M2..	2 ½"	M 75	52-60
MCGU	8SM1..	3"	M 90	45-52
MCGU	8SM2..	3"	M 90	52-60
MCGU	8M1..	3"	M 90	60-66
MCGU	8M2..	3"	M 90	66-72

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Applicant: Rose Systemtechnik GmbH (A Phoenix Mecano Company)
Erbeweg 13-15, D-32457 Porta Westfalica – Germany

Apparatus: Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT**

Identification of cable glands **CGA**LT**** type:

CGA * *** * (**) LT ** * - **

- Code that identifies cable glands for armoured or shielded cable
- Code that identifies the cable type:
  - **Blank**: standard *(for armoured cables only)*
  - **U**: universal *(for armoured or shielded cables)*
  - **O**: offshore *(for shielded cables only)*
- Size (*see Table 4 and 5*).
- Type of thread:
  - **N**: NPT ANSI/ASME B1.20.1
  - **S**: NPSM ANSI/ASME B1.20.1
  - **P**: PG DIN 40430 *(assessed for Ex eb protection mode only)*
  - **M**: ISO 261 pitch 1.5 (pitch 2.0 for sizes M90 up to M130)
  - **C**: GAS ISO 228-1
- Thread size (*see Table 4 and 5*)
- ***LT (Lower temperature)*** cable gland series
- Manufacturing material:
  - **B**: brass
  - **BN**: nickel-plated brass
  - **X**: stainless steel
  - **Z**: galvanized carbon steel
- Seals material:
  - **C**: Chloroprene (Neoprene)
  - **S**: Silicon rubber
- Flat washer:
  - **Blank**: none
  - **WC**: with flat washer in Chloroprene (Neoprene)
  - **WS**: with flat washer in Silicon rubber
  - **WF**: with flat washer in Fiber

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Erbeweg 13-15, D-32457 Porta Westfalica – Germany

Apparatus: Cable Glands, series CGA**, CGU**, MCGU**, CGA**LT**

Table 4:

CGA**LT** and CGAU**LT**						
Cable glands		Thread size			Cable Dia. ranges (mm)	
Type	Size	NPT	ISO pitch 1.5	ISO pitch 2.0	Inner sheath	Armour sheath
CGA**LT	1	1/2"	M 20	-	8.5-14.5	12-20
CGA**LT	2X	3/4"	M 25	-	8.5-14.5	12-20
CGA**LT	2	3/4"	M 25	-	8.5-16	12-21
CGA**LT	3X	1"	M 32	-	8.5-16	12-21
CGA**LT	9	3" ½	-	M 90	70-82	78-90
CGA**LT	10S	4"	-	M 100	80-92	88-100
CGA**LT	10	4"	-	M 110	90-101	98-110
CGA**LT	11S	5"	-	M 130	100-115	109-123

Table 5:

CGAO**LT**					
Cable glands		Thread size		Cable Dia. ranges (mm)	
Type	Size	NPT	ISO pitch 1.5	Inner sheath	Armour sheath
CGA**LT	1	1/2"	M 20	8.5-14.5	12-20
CGA**LT	2X	3/4"	M 25	8.5-14.5	12-20
CGA**LT	2	3/4"	M 25	8.5-16	12-21
CGA**LT	3X	1"	M 32	8.5-16	12-21